

Cement Board**TGL-47-11****1. Scope**

These Green Label product criteria are applicable to fiber cement board, wood cement board, and finished products made of those applicable cement boards which their properties or quality of the original products are not changed.

2. Green Label Certification Criteria**2.1 General requirements (Product quality)**

2.1.1 The product shall, at the least, be certified to or pass tests for desirable product characteristics specified in the Thai Industrial Standard (TIS) for that product, according to the following list:

- Thai Industrial Standard No. 1427 Fiber-cement flat sheets (TIS 1427)
- Thai Industrial Standard No. 878 Cement Bonded Particleboards : High Density (TIS 878)
- Recognized international or national standards
- Sampling methods for products shall comply with the product's relevant standards

2.1.2 The manufacturing, transportation, and waste disposal of the product shall comply with the relevant national laws and regulations.

2.2 Product specific requirements (Environmental criteria)**2.2.1 Fiber cement board**

2.2.1.1 Fiber used as raw material shall comply with the following requirements;

- 1) the material shall not be cut from natural forest, or
- 2) shall be from agricultural waste or domestic, or
- 3) shall be industrial fiber waste, or

- 4) shall be made of post-consumer waste paper or pre-consumer waste paper, but the content of 1), 2) or 4) shall be more than 10% of the produced fiber

2.2.1.2 Raw materials shall not contain the following substances

- 1) Asbestos
- 2) phosphogypsum
- 3) formaldehyde
- 4) pentachlorophenol
- 5) Carcinogenic agents as defined in group 1 and 2a of the International Agency for Research on Cancer (IARC)
- 6) Prohibited substances categorized as hazardous according to the Hazardous Substance Act. B.E. 2535

2.2.1.3 Paints applied to the product shall not contain the following substance

- 1) Lead, cadmium or its oxide, chromium (+6) or its oxide in manufacturing process. However, a combined contaminant of those substances shall not exceed 0.01 mg/l
- 2) Volatile organic compounds (VOCs) shall be less than 100 mg/l
- 3) Organic solvents include aromatic solvents, halogenated solvent, and formaldehyde in manufacturing process
- 4) Ammonium and its compounds shall be less than 2% by weight

2.2.1.4 Instructions of storage, transport, installation and disposal of the product shall be provided.

2.2.2 Wood cement board

2.2.2.1 Wood/wood chips used as raw material shall comply with the following requirements;

- 1) wood/wood chips shall not be cut from natural forest
- 2) the material can be agricultural, domestic, or industrial waste

2.2.2.2 Raw materials shall not contain the following substances

- 1) Asbestos
- 2) phosphogypsum
- 3) formaldehyde
- 4) pentachlorophenol
- 5) Carcinogenic agents as defined in group 1 and 2a of the International Agency for Research on Cancer (IARC)
- 6) Prohibited substances categorized as hazardous according to the Hazardous Substance Act. B.E. 2535

2.2.2.3 Paints applied to the product shall not contain the following substance

- 1) Lead, cadmium or its oxide, chromium (+6) or its oxide in manufacturing process. However, a combined contaminant of those substances shall not exceed 0.01 mg/l
- 2) Volatile organic compounds (VOCs) shall be less than 100 mg/l
- 3) Organic solvents include aromatic solvents, halogenated solvent, and formaldehyde in manufacturing process
- 4) Ammonium and its compounds shall be less than 2% by weight

2.2.2.4 Instructions of storage, transport, installation and disposal of the product shall be provided.

3. Verification methods

3.1 The manufacturer shall submit evidence indicating the right to bear Thai Industrial Standard symbols for that product or submit test results for the minimum desirable product characteristics according to the Thai Industrial Standard for that product or submit test results according to tests specified in recognized international or national standards (Requirement No.2.1.1).

3.2 The manufacturer shall submit evidence indicating that the manufacturing process, wastewater treatment, transportation, and industrial waste disposal are in

accordance with all applicable national laws and regulations (Requirement No.2.1.2).

3.3 The manufacturer shall submit the following documents indicating compliance with the requirement no. 2.2.

Source of Fiber	Evidence
Plantation wood, fast-growing wood, or material remnants	Evidence indicating the source of raw materials, which could be factory reports, the amount of material remnants, or receipts from the purchase of material remnants, plantation wood, or fast-growing wood. All evidence shall be signed by the authorized party from the source of wood.
Paper waste, agricultural waste, domestic or industrial waste	1) Declaration of fiber using ratio 2) Copies of the legal land titles, signed by the managing director or authorized person of the manufacturer.

3.4 The manufacturer shall submit a declaration document on the list of raw materials used for the manufacturing of the applicable products (requirement no. 2.2.1.2), sign by the managing director or authorized person of the manufacturer.

3.5 The manufacturer shall submit the following evidences indicating that the paint used for manufacturing of the applicable products are compliant with the requirement no. 2.2.1.3.

3.5.1 Test results of heavy metals in paint, which shall be conducted by the following methods or other recognized international /national equivalent methods.

- ISO 3856/4 for Cadmium or its oxides
- ISO 3856/5 for Chromium or its oxides
- TIS 285-27 for Lead (analyzed by atomic absorption spectroscopy)
- TIS 285-28 for Mercury (analyzed by atomic absorption spectroscopy)

3.5.2 Test results of VOCs in paint, which shall be conducted by ASTM D3960 or other recognized international /national equivalent methods

3.5.3 Declaration document indicating that aromatic hydrocarbons, halogenated solvents, or formaldehyde are not used in the manufacturing of the applicable products.

3.5.4 A test result or declaration document indicating that the content of ammonia in the product is not exceed 2% by weight

All submitted documents shall be signed by the managing director or authorized person of the manufacturer.

3.6 The manufacturer shall submit a manual which contains instruction for storage, transport, installation, and disposal method of the products (Requirement No.2.2.1.4).

3.7 The manufacturer shall submit the following evidences that the sources of wood/wood chips used for manufacturing of the applicable products are compliant with the requirement no. 2.2.2.1.

Source of Fiber	Evidence
Plantation wood, fast-growing wood, or material remnants	Evidence indicating the source of raw materials, which could be factory reports, the amount of material remnants, or receipts from the purchase of material remnants, plantation wood, or fast-growing wood. All evidence shall be signed by the authorized party from the source of wood.
Agricultural waste, domestic or industrial waste	Copies of the legal land titles, signed by the managing director or authorized person of the manufacturer

3.8 The manufacturer shall submit a declaration document indicating that the raw materials used for manufacturing of the applicable products are compliant with the requirement no. 2.2.2.2. The document shall be signed by the managing director or authorized person of the manufacturer.

3.9 The manufacturer shall submit the following evidences that the paint used for manufacturing of the applicable products are compliant with the requirement no. 2.2.2.3.

3.9.1 Test results of heavy metals in paint, which shall be conducted by the following methods or other recognized international /national equivalent methods.

- ISO 3856/4 for Cadmium or its oxides
- ISO 3856/5 for Chromium or its oxides
- TIS 285-27 for Lead (analyzed by atomic absorption spectroscopy)
- TIS 285-28 for Mercury (analyzed by atomic absorption spectroscopy)

3.9.2 Test report of VOCs in paint, which shall be conducted by ASTM D3960 or other recognized international /national equivalent methods

3.9.3 Declaration document indicating that aromatic hydrocarbons, halogenated solvents, or formaldehyde are not used in the manufacturing of the applicable products.

3.9.4 A test result or declaration document indicating that the content of ammonia in the product is not exceed 2% by weight.

All submitted documents shall be signed by the managing director or authorized person of the manufacturer.

3.10 The manufacturer shall submit a manual which contains instruction for storage, transport, installation, and disposal method of the products (Requirement No. 2.2.2.4).

Remark: All tests shall be conducted by the any of the following laboratories.

- (1) Government laboratories
- (2) Private laboratory that is certified for its capability of testing following the requirement of Thai Industry Standard, or laboratory that is certified for competence of testing and calibration according to ISO/IEC 17025
- (3) Duration of acceptable test results shall be in a maximum of one year before the date of application.